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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,340	01/30/2002	Minho Sohn	052640-5022	6132

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EXAMINER
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MCDONALD, RODNEY GLENN

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/058,340

Applicant(s)

SOHN ET AL.

Examiner

Rodney G. McDonald

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 and 33 is/are pending in the application.
- 4a) Of the above claim(s) 19-29 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1-14-05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on has been entered.

### ***TRADEMARKS AND THEIR USE***

The use of the trademark CEMITE™ has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner, which might adversely affect their validity as trademarks

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grant et al. (U.S. Pat. 2,991,389) in view of Ikebe et al. (U.S. Pat. 4,774,433).

Grant et al. teach a cesium vapor emitter having a housing of heat insulating material, which forms a chamber 73. (Column 3 lines 60-61) The chamber 73 has at least one channel in the form of a recess 72 from which cesium vapor is emitted. (Column 3 lines 70-74) A cesium reservoir 4 is placed in the chamber 73. (Column 2 line 65) The cesium reservoir is filled with a cesium charge 10. (Column 4 lines 70-75) A plug 14 in the form of a collimator is located between the cesium reservoir 4 and the channel 72 (i.e. recess). (Column 2 lines 66-68) A stopper in the form of a plug 18 brazed to block 12 at its right hand end seals the end of the reservoir 4. (Column 2 lines 69-71; Thus the stopper secures the cesium reservoir in the chamber so that cesium vapor is emitted through the channel 72.)

Grant et al. in Fig. 1 show the housing as rectangular. (See Fig. 1)

Grant et al. teach heating the reservoir to 70 degrees C. (Column 4 line 75)

The difference between Grant et al. and the present claims is that a slurry is not discussed.

Ikebe teach a cesium slurry in the form of cesium chromate and silicon. (Column 3 lines 9-12) Here the cesium chromate and silicon is interpreted to be slurry because of the heating action of heater 10, which makes the mixtures have a liquid component. (Column 3 lines 13-16) As to the Cemite<sup>TM</sup> of the claims since the Cemite is understood to be a slurry but it is not identified as a particular slurry composition Ikebe's slurry would suggest the Cemite<sup>TM</sup>. (See MPEP 608.01(v) If the trademark has a fixed and definite meaning, it constitutes sufficient identification unless some physical or chemical characteristic of the article or material is involved in the invention. In that event, as also in those cases where the trademark has no fixed and definite meaning, identification by scientific or other explanatory language is necessary. In re Gebauer-Fuelnegg, 121 F.2d 505, 50 USPQ 125 (CCPA 1941).)

The motivation for utilizing a cesium slurry in a cesium vapor emitter is that it allows for production of cesium vapor. (Column 3 line 21)

Therefore, it would have been obvious to one of ordinary to have modified Grant et al. by utilizing a cesium slurry as taught by Ikebe because it allows for the production of cesium vapor.

Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grant et al. in view of Ikebe et al. as applied to claims 1, 2 and 7-9 above, and further in view of Seidl (U.S. Pat. 4,783,595).

The differences not yet discussed the use of cesium pellet for the plug, where the cesium pellet is sintered cesium-mordenite, where the composition of the cesium

mordenite is  $\text{Cs}_2\text{OAl}_2\text{O}_310\text{SiO}_2$ , and where the cesium slurry is a mixture of cesium mordenite powder 50%-liquid cesium 50% by weight.

Seidl teach a sintered cesium pellet formed of a mordenite structure, which has channels through which cations can move. (Column 4 lines 65-67) Since the collimator of Grant et al. require channels it would be obvious to replace it with a sintered pellet of cesium mordenite of Seidl since the mordenite structure has channels. (See Grant et al. discussed above)

Seidl's cesium mordenite has a cell chemical formula of  $\text{Cs}_2\text{OAl}_2\text{O}_310\text{SiO}_2$ .  
(Column 5 lines 3-6)

As to the slurry being cesium mordenite powder 50%-liquid cesium 50% by weight, since Ikebe teach a slurry and Seidl suggest cesium the cesium composition it would be obvious to heat the cesium composition such that there is a 50/50 solid phase and liquid phase having cesium. (See Ikebe and Seidl discussed above)

The motivation for using a cesium pellet for the plug, where the cesium pellet is sintered cesium-mordenite and where the composition of the cesium mordenite is  $\text{Cs}_2\text{OAl}_2\text{O}_310\text{SiO}_2$  is that it allows for providing a good cation emitting material. (Column 4 lines 65-67)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a cesium pellet for the plug, where the cesium pellet is sintered cesium-mordenite and where the composition of the cesium mordenite is  $\text{Cs}_2\text{OAl}_2\text{O}_310\text{SiO}_2$  as taught by Seidl because it allows for providing a good cation emitting material.

Claims 10 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grant et al. in view of Ikebe as applied to claims 1, 2, 7-9 above, and further in view of Kim et al. (U.S. Pat. 6,383,345).

The difference not yet discussed is utilizing the cesium vapor emitter in conjunction with a negative ion sputter source.

Kim et al. teach a target provided on an electrode, which is provided with a potential of 25 eV to 1000 eV. (Column 5 lines 10-11) A cesium introduction system is present near the target. (Column 3 lines 63-65; Figure 1) An argon source 30 is provided in proximity to the cesium vapor emitter. (Column 4 lines 53-58)

The motivation for providing a sputtering target with a cesium vapor emitter is that it allows for producing a film having a desired resistivity or low optical transmittance. (Column 1 lines 59-63; Column 1 lines 50-51)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized an electrode with sputter target near the cesium vapor emitter as taught by Kim et al. because it allows for production of films having a desired transmittance or low optical transmittance.

Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grant et al. in view of Ikebe et al. and further in view of Kim et al. as applied to claims 1, 2, 7-9, 10 and 16-18 above, and further in view of Seidl (U.S. Pat. 4,783,595)

The differences not yet discussed are the use of a cesium pellet for the plug, the use of Cemite<sup>TM</sup>, the use of sintered cesium mordenite, the use of a composition of the

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composition of the cesium mordenite is  $\text{Cs}_2\text{OAl}_2\text{O}_310\text{SiO}_2$  and the slurry being cesium mordenite powder 50%-liquid cesium 50% by weight is not discussed.

Seidl teach a sintered cesium pellet formed of a mordenite structure, which has channels through which cations can move. (Column 4 lines 65-67) Since the collimator of Grant et al. require channels it would be obvious to replace it with a sintered pellet of cesium mordenite of Seidl since the mordenite structure has channels. (See Grant et al. discussed above)

Seidl's cesium mordenite has a cell chemical formula of  $\text{Cs}_2\text{OAl}_2\text{O}_310\text{SiO}_2$ .  
(Column 5 lines 3-6)

As to the slurry being cesium mordenite powder 50%-liquid cesium 50% by weight, since Ikebe teach a slurry and Seidl suggest cesium the cesium composition it would be obvious to heat the cesium composition such that there is a 50/50 solid phase and liquid phase having cesium. (See Ikebe and Seidl discussed above)

The motivation for using a cesium pellet for the plug, where the cesium pellet is sintered cesium-mordenite and where the composition of the cesium mordenite is  $\text{Cs}_2\text{OAl}_2\text{O}_310\text{SiO}_2$  is that it allows for providing a good cation emitting material. (Column 4 lines 65-67)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a cesium pellet for the plug, where the cesium pellet is sintered cesium-mordenite, where the composition of the cesium mordenite is  $\text{Cs}_2\text{OAl}_2\text{O}_310\text{SiO}_2$  and to have utilized a 50/50 cesium composition cesium slurry as taught by Seidl because it allows for providing a good cation emitting material.




**REMARKS:**

The information disclosure statement filed January 14, 2005. Ikebe et al. has been utilized above in a new 35 U.S.C. 103 rejection in order to demonstrate the use of slurry. The Examiner awaits comments/arguments on the new rejections given above. Also Claims 19-29 and 33 have been withdrawn due to an early restriction requirement and claims 30-32 canceled.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Rodney G. McDonald  
Primary Examiner  
Art Unit 1753

RM  
February 17, 2005